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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/625,017	07/23/2003	John David Heinzmann	1062/D20	8423
2101	7590	08/15/2005	EXAMINER	
BROMBERG & SUNSTEIN LLP 125 SUMMER STREET BOSTON, MA 02110-1618			HE, AMY	
			ART UNIT	PAPER NUMBER
			2858	
DATE MAILED: 08/15/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/625,017

Applicant(s)

HEINZMANN ET AL.

Examiner

Amy He

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 June 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pugh (U. S. Patent No. 6, 486,626), in view of Liang et al. (U. S. Patent No. 6, 670,785).

Referring to claims 1-2, Pugh discloses a method for detecting an open winding condition in a motor, the method comprising:

- a. measuring a winding voltage(col. 2, lines 44-45);
- b. calculating a residue voltage (the resultant sum of subtracting the actual and expected voltage values, col. 3, lines 64-67) for the winding, the residue voltage equaling the difference between a measured voltage drop across the winding and a calculated voltage drop (nominal expected voltage, column 2, lines 47-48) for a non-open winding condition;
- c. comparing the residue voltage to a threshold value (predetermined amount/value, col. 2, lines 52-54; col. 3, lines 66-67);
- d. signaling (by generating an error signal, column 2, lines 52-53 and lines 64-67) when the residue voltage exceeds the threshold value, to declare an open winding condition.

Still referring to claims 1-2, Pugh does not specifically disclose measuring a winding current and a motor speed; and calculating the voltage drop as a function of the measured winding current and motor speed.

Liang et al. (U. S. Patent No. 6, 670, 785) discloses measuring a winding current (col. 4, lines 31-32) and a motor speed (col. 4, lines 29-31) and calculating a voltage drop (col. 2, lines 32-34) for a non-open winding condition as a function of the measured winding current and motor speed (col. 4, lines 27-49).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Pugh to measure a winding current and motor speed and calculated the expected voltage as a function of the motor speed and the winding current, as taught by Liang, for the purpose of obtaining an improved voltage drop calculation value using the measured motor speed and the winding current (col. 4, lines 20-49).

Referring to claims 3-5, Pugh in view of Liang discloses a method for detecting an open winding condition in a motor as in claims 1-2. Pugh in view of Liang does not specifically disclose duplicating the measuring and computing steps for a second stator winding in the motor; and comparing a residual voltage difference between the first and second residual voltages; and signaling when the residue difference exceeds the threshold value to declare an open winding condition.

A person of ordinary skill in the art would find it obvious at the time the invention was made to further modify Pugh to disclose duplicating the measuring and computing steps for a second stator winding in the motor, since it has been held that mere

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duplication of the essential working parts of a device involves only routine skill in the art. See *St Regis Paper Co. v. Bemis Co.*, 193 USPQ 8. In addition, with the first and the second residue voltages available, a person of ordinary skill in the art would find it obvious to compare the residue voltage difference between the two residue voltages to the threshold value, in order to detect any discrepancy between the two residue voltages for signaling a fault in the winding of a dual-stator redundant motor.

2. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pugh (U. S. Patent No. 6, 486,626) in view of Liang et al. (U. S. Patent No. 6, 670,785), and further in view of Dowling (U. S. Patent No. 6, 308,140).

Referring to claim 6, Pugh in view of Liang discloses the method of claim 3. Pugh in view of Liang does not specifically disclose compensating for measurement delay before calculating a residue voltage difference. Dowling discloses compensating for measurement delay (see step 70 in Figure 3). A person of ordinary skill in the art would find it obvious at the time of the invention to further modify Pugh to compensate for measurement delay, as taught by Dowling, before calculating a residue voltage difference, for obtaining an improved winding voltage value.

Response to Arguments

3. Applicant's arguments with respect to claims 1-6 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

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4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amy He whose telephone number is (571) 272-2230. The examiner can normally be reached on 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lefkowitz can be reached on 571-272-2180. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AH
August 10, 2005.


ANJAN DEB
PRIMARY EXAMINER